CLAIMS

What is Claimed is:

1. A platform lift apparatus, comprising:

a frame having internal and external mounting surfaces;

a drive mechanism substantially disposed within said frame and coupled to said internal mounting surfaces, said drive mechanism including a plurality of rotatable, parallel shafts with each shaft further including at least one lift drum having an associated lift tether at least partially wound thereon and having an end hanging therefrom; and

a platform coupled to each said lift tether end and being thereby suspended from said frame, said platform being selectively movable by operation of said drive mechanism within in a vertical dimension between raised and lowered positions.

2. The platform lift apparatus of Claim 1, wherein said plurality of parallel shafts further comprises two parallel shafts, said drive mechanism driving said parallel shafts to rotation in a like rotational direction.

3. The platform lift apparatus of Claim 1, wherein said drive mechanism further comprises an electric motor operatively coupled to said plurality of parallel shafts.

4. The platform lift apparatus of Claim 1, wherein each one of said plurality of parallel shafts further comprises at least one drive pulley, said drive mechanism further comprising a drive belt coupled to respective drive pulleys of each of said plurality of parallel shafts, said plurality of shafts being driven to rotation by operation of said drive mechanism.

5. The platform lift apparatus of Claim 4, wherein said drive belt further comprises a continuous loop, said plurality of shafts being driven to synchronous rotation by operation of said drive mechanism.

6. The platform lift apparatus of Claim 1, wherein said drive mechanism further comprises at least one extension idler in association with said at least one lift drum, said at least one extension idler shifting a horizontal position of said lift tether.

7. The platform lift apparatus of Claim 1, wherein said platform further comprises a horizontal base and a plurality of vertical walls defining a basket.

8. The platform lift apparatus of Claim 7, wherein said platform further comprises a foldable fence connected to said vertical walls.

9. The platform lift apparatus of Claim 1, wherein each said lift tether end further comprises a releasable fastener coupled to a corresponding member on said platform.

10. The platform lift apparatus of Claim 1, wherein said platform further comprises a seal providing a barrier between said platform and said frame when said platform is at said raised position.

11. The platform lift apparatus of Claim 1, wherein said drive mechanism further comprises at least one tensioner associated with said at least one lift drum, said at least one tensioner being disposed in contact with said lift tether associated with said at least one lift drum to prevent twisting or kinking of said lift tether while winding on or unwinding from said at least one lift drum.

12. The platform lift apparatus of Claim 11, wherein said at least one tensioner further comprises a contact member and a spring biasing said contact member into contact with said lift tether.

13. The platform lift apparatus of Claim 12, wherein said contact member further comprises a roller in contact with said lift tether.

14. The platform lift apparatus of Claim 1, wherein said lift tether further comprises a braided or webbing material.

15. The platform lift apparatus of Claim 1, wherein said plurality of parallel shafts further comprises two parallel shafts offset vertically with respect to each other, said drive mechanism driving said parallel shafts to rotation in opposite rotational directions.

16. The platform lift apparatus of Claim 1, wherein said at least one lift drum on one of said plurality of shafts further comprises an idler lift drum operatively coupled to a drive pulley of another one of said plurality of shafts to communicate rotational motion between said shafts.

17. The platform lift apparatus of Claim 1, further comprising means coupled to an underside of said platform for detecting impact of said platform upon an object.

18. The platform lift apparatus of Claim 1, further comprising a contact plate and a plurality of springs coupling said contact plate to an underside of said platform, said contact plate thereby being moveable vertically against bias applied by said plurality of springs.

19. The platform lift apparatus of Claim 18, further comprising a plurality of microswitches associated respectively with said plurality of springs, each one of said plurality of microswitches being adapted to close and provide a corresponding signal upon compression of an associated one of said plurality of springs.

20. The platform lift apparatus of Claim 1, further comprising a retractable wheel coupled to an underside of said platform.

21. A platform lift apparatus, comprising:

a frame having internal and external mounting surfaces;

a drive mechanism substantially disposed within said frame and coupled to said internal mounting surfaces, said drive mechanism including first and second rotatable, parallel shafts supported by said frame, said first shaft further including at least one lift drum and at least one drive pulley, said second shaft further including at least one lift drum, each said lift drum of said first and second shafts having an associated lift tether at least partially wound thereon and having an end hanging therefrom, said at least one drive pulley of said first shaft being operatively coupled to said second shaft to permit simultaneous rotation of said first shaft and said second shaft; and

a platform coupled to each said lift tether end and being thereby suspended from said frame, said platform being selectively movable by operation of said drive mechanism within in a vertical dimension between a raised position substantially in contact with said frame and a lowered position within a space below said frame.

22. The platform lift apparatus of Claim 21, wherein said first and second shafts are driven to rotation in a like rotational direction.

23. The platform lift apparatus of Claim 21, wherein said first and second shafts are driven to rotation in an opposite rotational direction.

24. The platform lift apparatus of Claim 21, wherein said drive mechanism further comprises an electric motor operatively coupled to said shafts.

25. The platform lift apparatus of Claim 21, wherein said drive mechanism further comprises at least one extension idler in association with each said at least one lift drum, said at least one extension idler shifting a horizontal position of said lift tether.

26. The platform lift apparatus of Claim 21, wherein said platform further comprises a horizontal base and a plurality of vertical walls defining a basket.

27. The platform lift apparatus of Claim 26, wherein said platform further comprises a foldable fence connected to said vertical walls.

28. The platform lift apparatus of Claim 21, wherein each said lift tether further comprises a releasable fastener coupled to a corresponding member on said platform.

29. The platform lift apparatus of Claim 21, wherein said platform further comprises a seal providing a barrier between said platform and said frame when said platform is at said raised position.

30. The platform lift apparatus of Claim 21, wherein said drive mechanism further comprises at least one tensioner associated with said at least one lift drum, said at least one tensioner being disposed in contact with said lift tether associated with said at least one lift drum to prevent twisting or kinking of said lift tether while winding on or unwinding from said at least one lift drum.

31. The platform lift apparatus of Claim 30, wherein said at least one tensioner further comprises a contact member and a spring biasing said contact member into contact with said lift tether.

32. The platform lift apparatus of Claim 31, wherein said contact member further comprises a roller biased in contact with said lift tether.

33. The platform lift apparatus of Claim 21, wherein said lift tether further comprises a braided or webbing material.

34. The platform lift apparatus of Claim 21, wherein said first and second shafts are offset vertically with respect to each other.

35. The platform lift apparatus of Claim 21, wherein said second shaft further comprises at least one drive pulley, said at least one drive pulley of said first shaft being operatively coupled to said at least one drive pulley of said second shaft by a continuous belt.

36. The platform lift apparatus of Claim 21, wherein said at least one lift drum on said second shaft further comprises an idler lift drum operatively coupled to said at least one drive pulley of said first shaft.

37. The platform lift apparatus of Claim 21, further comprising means coupled to an underside of said platform for detecting impact of said platform upon an object.

38. The platform lift apparatus of Claim 21, further comprising a contact plate and a plurality of springs coupling said contact plate to an underside of said platform, said contact plate thereby being moveable vertically against bias applied by said plurality of springs.

39. The platform lift apparatus of Claim 38, further comprising a plurality of microswitches associated respectively with said plurality of springs, each one of said plurality of microswitches being adapted to close and provide a corresponding signal upon compression of an associated one of said plurality of springs.

40. The platform lift apparatus of Claim 21, further comprising a retractable wheel coupled to an underside of said platform.